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**Notice of Allowability**

Application No.

10/731,090

Examiner

Allen C. Ho

Applicant(s)

NAKANO, HIROKAZU

Art Unit

2882

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 10 August 2005.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 10082005
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1-25 are allowed.
2. The following is an examiner's statement of reasons for allowance:

With regard to claims 1-6, although the prior art discloses a radiation therapy treatment planning machine comprising a multileaf-collimator-position-calculation-unit that generates multileaf collimator leaf positions as a time series and a motion-speed-calculating unit that calculates leaf motion speed based on the generated time series leaf positions, it fails to teach or fairly suggest a motion-speed-limit-establishing-unit that establishes a motion speed limit of the leaves and a motion-display-unit that indicates leaf motion information and indicates the motion information of an area where the calculated motion speed exceeds the established motion speed limit as claimed.

With regard to claims 7-19, although the prior art discloses a radiation therapy treatment planning machine comprising a multileaf-collimator-position-calculation-unit that generates multileaf collimator leaf positions as a time series and a motion-speed-calculating unit that calculates leaf motion speed based on the generated time series leaf positions, it fails to teach or fairly suggest a motion-speed-limit-establishing-unit that establishes a motion speed limit of the leaves and a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion speed exceeds the established motion speed limit, such that the leaf motion speed is equal to or less than the established motion speed limit as claimed.

With regard to claims 20-22, although the prior art discloses a radiation therapy treatment planning machine comprising a multileaf-collimator-position-calculation-unit that generates multileaf collimator leaf positions as a time series and a motion-acceleration-calculating-unit that calculates leaf motion acceleration based on the generated time series leaf positions, it fails to teach or fairly suggest a motion-acceleration-limit-establishing-unit that establishes a motion acceleration limit of the leaves and a motion-display-unit that indicates leaf motion information of an area where the calculated motion acceleration exceeds the established acceleration limit as claimed.

With regard to claims 23-25, although the prior art discloses a radiation therapy treatment planning machine comprising a multileaf-collimator-position-calculation-unit that generates multileaf collimator leaf positions as a time series and a motion-acceleration-calculating-unit that calculates leaf motion acceleration based on the generated time series leaf positions, it fails to teach or fairly suggest a motion-acceleration-limit-establishing-unit that establishes a motion acceleration limit of the leaves and a leaf-position-correction-unit that corrects the leaf positions of an area, where the calculated motion acceleration exceeds the established motion acceleration limit, such that the leaf motion acceleration is equal to or less than the established motion acceleration limit as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Amendment***

3. Applicant's amendments filed 10 August 2005 with respect to the specification have been fully considered and are persuasive. The objections of the specification have been withdrawn.
4. Applicant's amendments filed 10 August 2005 with respect to the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn.
5. Applicant's amendments filed 10 August 2005 with respect to claims 7, 9-13, 15-19, and 23 have been fully considered and are persuasive. The objection of claims 7, 9-13, 15-19, and 23 has been withdrawn.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
  - (1) Otto (U. S. Patent No. 6,907,105 B2) disclosed a method and system for controlling the spatial distribution of radiation produced by a radiation therapy treatment device having a multileaf collimator.
  - (2) Alber (U. S. Patent No. 6,879,659 B2) disclosed a radiotherapeutic apparatus.
  - (3) Hernandez-Guerra (U. S. Patent No. 6,687,330 B2) disclosed a system and method for intensity modulated radiation therapy.
  - (4) Yu (U. S. Patent No. 5,818,902) disclosed an intensity modulated arc therapy with dynamic multi-leaf collimation.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho  
Primary Examiner  
Art Unit 2882

28 September 2005